CLAIMS

1. An organic multicolor emission and display device comprising:

a first substrate;

an organic light emitting element including at least a first electrode, an organic light emitting layer, and a transparent second electrode laminated on the first substrate;

a transparent second substrate;

a color conversion filter layer formed on the transparent second substrate, the color conversion filter layer receiving electroluminescence from the organic light emitting layer and generating colored light; and

a gap material that positions the first substrate and the second substrate opposite to each other in such a way that the organic light emitting element is opposite to the color conversion filter layer with a predetermined clearance, and that seals a space between the first substrate and the second substrate;

wherein the gap material is placed along an outer peripheral region on an inner surface of the first substrate, the organic light emitting element being provided on the inner surface of the first substrate and the organic light emitting element being absent on the outer peripheral region of the first substrate; and the gap material is placed also along an outer peripheral region on an inner surface of the second substrate, the color conversion filter layer being provided on the inner surface of the second substrate, and the color conversion filter layer being absent on the outer peripheral region of the second

substrate; and the gap material performs function to desiccate atmosphere of a sealed space between the first substrate and the second substrate.

2. The organic multicolor emission and display device according to claim 1, wherein the gap material placed along the outer peripheral region on the inner surfaces of the first substrate and the second substrate has different void fractions between in an inner portion of the gap material facing the sealed space and in an outer portion of the gap material facing external atmosphere.

3. The organic multicolor emission and display device according to claim 2, wherein the gap material has a void fraction of at most 1 % in the outer portion of the gap material and a void fraction of from 50 % to 90 % in the inner portion of the gap material.

4. The organic multicolor emission and display device according to claim 3, wherein the inner portion of the gap material, in which a void fraction is from 50 % to 90 %, occupies from 10 % to 90 % of total width of the gap material extending from innermost end to outermost end of the gap material.

5. The organic multicolor emission and display device according to claim 2, wherein the inner portion of the gap material holds an oxide of an alkali metal or an oxide of an alkaline earth metal in voids within the gap material.

6. The organic multicolor emission and display device according to claim 1, wherein the gap material is composed of an inorganic compound represented by metal oxides such as alumina and zirconia and metal nitrides such as silicon nitride and boron nitride.

7. The organic multicolor emission and display device according to claim 1, wherein a thickness dimension between the first substrate and the second substrate of the gap material is in a range of 1 μm to 100 μm.

8. An organic multicolor emission and display device comprising:

a first substrate;

a transparent second substrate;

a color conversion filter layer formed on the transparent second substrate;

an organic light emitting element including at least a first electrode, an organic light emitting layer, and a transparent second electrode, the light emitting element being formed on the color conversion filter layer with the transparent second electrode facing the color conversion filter layer;

a gap material that positions the first substrate and the second substrate opposite to each other in such a way that the organic light emitting element above the second substrate is opposite to the first substrate with a predetermined clearance, and that seals a space between the first substrate and the second substrate;

wherein, the gap material is placed along an outer peripheral region on an inner surface of the second substrate, functional layers including the color conversion filter layer and the organic light emitting element being provided on the inner surface of the second substrate and the functional layers being absent on the outer peripheral region of the second substrate; and the gap material is placed also along an peripheral region on an inner surface of the first substrate, the peripheral region of the first substrate being opposite to the peripheral region of the inner surface of the second substrate; and the gap material performs function to desiccate atmosphere of a sealed space between the first substrate and the second substrate.

9. The organic multicolor emission and display device according to claim 8, wherein the gap material placed along the outer peripheral region on the inner surfaces of the first substrate and the second substrate has different void fractions between in an inner portion of the gap material facing the sealed space and in an outer portion of the gap material facing external atmosphere.

10. The organic multicolor emission and display device according to claim 9, wherein the gap material has a void fraction of not greater than 1 % in the outer portion of the gap material and a void fraction from 50 % to 90 % in the inner portion of the gap material.

11. The organic multicolor emission and display device according

to claim 10, wherein the inner portion of the gap material, in which a void fraction is from 50 % to 90 %, occupies from 10 % to 90 % of total width of the gap material extending from innermost end to outermost end of the gap material.

12. The organic multicolor emission and display device according to claim 9, wherein the inner portion of the gap material holds an oxide of an alkali metal or an oxide of an alkaline earth metal in voids within the gap material.

13. The organic multicolor emission and display device according to claim 8, wherein the gap material is composed of an inorganic compound represented by metal oxides such as alumina and zirconia and metal nitrides such as silicon nitride and boron nitride.

14. The organic multicolor emission and display device according to claim 8, wherein sealing height dimension between the first substrate and the second substrate of the gap material is in a range of 1 μm to 100 μm.

15. The organic multicolor emission and display device according to any one of claims 8 through 14 further comprising a desiccant attached on the inner surface of the first substrate.

16. A method for manufacturing an organic multicolor emission and display device comprising steps of:

forming an organic light emitting element by laminating at least a first electrode, an organic light emitting layer, and a second electrode on a first substrate;

forming a color conversion filter layer on a transparent second substrate, the color conversion filter layer receiving electroluminescence from the organic light emitting layer and generating colored light; and

positioning the first substrate and the second substrate opposite to each other with a gap material, and sealing a space between the first substrate and the second substrate with the gap material;

wherein the gap material is placed along an outer peripheral region on an inner surface of the first substrate, the organic light emitting element being provided on the inner surface of the first substrate and the light emitting element being absent on the outer peripheral region of the first substrate; and the gap material is also placed along an outer peripheral region on an inner surface of the second substrate, the color conversion filter layer being provided on the inner surface of the second substrate, and the color conversion filter layer being absent on the outer peripheral region of the second substrate; the gap material performs function to desiccate surrounding atmosphere; and the gap material positions the first and the second substrates in such a way that the organic light emitting element is opposite to the color conversion filter layer with a predetermined clearance.

17. The method for manufacturing an organic multicolor

emission and display device according to claim 16, wherein the gap material placed along the outer peripheral region on the inner surfaces of the first substrate and the second substrate has different void fractions between in an inner portion of the gap material facing the sealed space between the first substrate and the second substrate and in an outer portion of the gap material facing external atmosphere.

18. The method for manufacturing an organic multicolor emission and display device according to claim 17, wherein the gap material has a void fraction of not greater than 1 % in the outer portion of the gap material and a void fraction from 50 % to 90 % in the inner portion of the gap material.

19. The method for manufacturing an organic multicolor emission and display device according to claim 18, wherein the inner portion of the gap material, in which a void fraction is from 50 % to 90 %, occupies from 10 % to 90 % of total width of the gap material extending from innermost end to outermost end of the gap material.

20. The method for manufacturing an organic multicolor emission and display device according to claim 19, wherein the inner portion of the gap material holds an oxide of an alkali metal or an oxide of an alkaline earth metal in voids within the gap material.

21 The method for manufacturing an organic multicolor

emission and display device according to claim 16, wherein the gap material is composed of an inorganic compound represented by metal oxides such as alumina and zirconia and metal nitrides such as silicon nitride and boron nitride.

22. The method for manufacturing an organic multicolor emission and display device according to claim 16, wherein a sealing height dimension between the first substrate and the second substrate of the gap material is in a range of 1 μm to 100 μm.

23. A method for manufacturing an organic multicolor emission and display device comprising steps of:

preparing a first substrate and a transparent second substrate;

forming a color conversion filter layer on the transparent second substrate;

forming a light emitting element comprising at least a first electrode, an organic light emitting layer, and a transparent second electrode on the color conversion filter layer in such a way that the transparent second electrode facing the color conversion filter layer;

positioning the first substrate and the second substrate opposite to each other with a gap material, and sealing a space between the first substrate and the second substrate with the gap material;

wherein the gap material is placed along an outer peripheral region on an inner surface of the second substrate, functional layers including the color conversion filter layer and the organic light emitting element being provided on the inner surface of the second

substrate and the functional layers being absent on the outer peripheral region of the second substrate; and the gap material is placed also long an peripheral region on an inner surface of the first substrate, the peripheral region of the first substrate being opposite to the peripheral region of the second substrate; the gap material performs function to desiccate surrounding atmosphere; and the gap material positions the first and the second substrates in such a way that the organic light emitting element above the second substrate is opposite to the first substrate with a predetermined clearance.

24. The method for manufacturing an organic multicolor emission and display device according to claim 23, wherein the gap material placed along the outer peripheral region on the inner surfaces of the first substrate and the second substrate has different void fractions between in an inner portion of the gap material facing the sealed space between the first substrate and the second substrate and in an outer portion of the gap material facing external atmosphere.

25. The method for manufacturing an organic multicolor emission and display device according to claim 24, wherein the gap material has a void fraction of not greater than 1 % in the outer portion of the gap material and a void fraction from 50 % to 90 % in the inner portion of the gap material.

26. The method for manufacturing an organic multicolor

emission and display device according to claim 25, wherein the inner portion of the gap material, in which a void fraction is from 50 % to 90 %, occupies from 10 % to 90 % of total width of the gap material extending from innermost end to outermost end of the gap material.

27. The method for manufacturing an organic multicolor emission and display device according to claim 25, wherein the inner portion of the gap material holds an oxide of an alkali metal or an oxide of an alkaline earth metal in voids within the gap material.

28. The method for manufacturing an organic multicolor emission and display device according to claim 23, wherein the gap material is composed of an inorganic compound represented by metal oxides such as alumina and zirconia and metal nitrides such as silicon nitride and boron nitride.

29. The method for manufacturing an organic multicolor emission and display device according to claim 23, wherein a sealing height dimension between the first substrate and the second substrate of the gap material is in a range of 1 μm to 100 μm.

30. The method for manufacturing an organic multicolor emission and display device according to any one of claims 23 through 29 further comprising a step of attaching a desiccant on the inner surface of the first substrate.